EFFECT OF HEURISTIC BIASES ON CAPITAL STRUCTURE OF FIRMS LISTED AT NAIROBI SECURITIES EXCHANGE

BY

ANDAYI MARGARET OMURONJI

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DECLARATION

This research project report is my own original work and has not been presented for any award in any University.

Signature_____ **Date**_____

Margaret Andayi Omuronji

D61/77079/2015

This research project report has been submitted for examination with my approval as the University of Nairobi supervisor.

Signature_____ **Date**_____

Dr. Zipporah Onsomu

Lecturer

University of Nairobi.

Mombasa Campus

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DEDICATION

The project is dedicated to my late mom and dad who gave me a chance to study up to undergraduate. Their constant reminder of the value of education will forever be in my heart. My son Fischer for being calm even when I spent much time away from home.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
CEO	Chief Executive officer
CMA	Capital Market Authority
NSE	Nairobi Securities Exchange
SEO	Seasoned Equity Offering
SPSS	Statistical Package for Social Sciences

ABSTRACT

The study sought to find out the effect of heuristic biases on capital structure of firms listed at Nairobi securities exchange. Anchoring bias, representative bias and availability bias constituted the three main variables under heuristics. Descriptive research design was employed. A census survey was used to collect data from a population of 44 listed firms at Nairobi securities exchange as at 31st December, 2017. Data from firms was collected using semi structured questionnaires. In order to test for assumptions of multiple linear regressions, Normality test was done using a histogram; linearity test employed a scatter plot, while multicollinearity was tested using Variance inflation factor (VIF). SPSS tool was adopted to analyze data using descriptive statistics, correlation analysis, regression analysis and ANOVA. Correlation results revealed that there was a weak positive correlation between capital structure and heuristic biases which was not significant, ($r = 0.024$, $p= 0.872$), firm size had a weak negative correlation with capital structure which was insignificant ($r = 0.036$, $p = 0.798$). Profitability had a weak positive correlation with capital structure which was statistically insignificant ($r = 0.016$, $p = 0.911$) while tangibility had a strong positive correlation with capital structure that was statistically significant($r = 0.749$, $p < .001$), finally growth opportunities had a weak negative correlation with capital structure which was statistically insignificant($r = -0.021$, $p = 0.892$). However statistically significant correlations was between capital structure and tangibility ($r = 0.749$, $p <0.05$). Regression analysis revealed the following: 59.8% of capital structure could be explained using heuristic biases, firm size, profitability, and tangibility and growth opportunities. The regression coefficient showed that heuristic biases influenced capital structure negatively by -2.814, Firm size had a negative effect on capital structure by -0.413, profitability influenced capital structure positively by 0.029, and tangibility had a positive effect on capital by 3.962 while growth opportunities positively influenced capital structure by 0.077. However statistically significant variables in regression coefficients were heuristic biases, firm size and tangibility at p values 0.043, 0.022 and $p< 0.001$ respectively. The model summary was significant at $p <0.05$ while the F test revealed ($F (5, 40) = 14.397$, $p< .001$), it was significant at $p < 0.001$ which meant the model was statistically significant in explaining changes in capital structure. The study concluded that heuristic biases had a negative effect on leverage levels of firms listed at Nairobi securities exchange. It was therefore recommended that managers be educated on heuristic biases that might affect their decisions so that they make informed decisions. The research further recommended that firm managers be able to draw a balance between appropriate combination of debt and equity to finance activities of the firms based on valid fundamental principles as opposed to heuristics.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Heuristics are rules of thumb. They simplify decision making process by substituting a difficult question with an easier one (Kahneman, 2011). Heuristic biases can be a source of cognitive biases. According to Huang and Liu (2007), heuristics can be a good source of faster decision making while at the same time they can lead to systematic errors. Tversky and Kahneman(1974) identified three heuristics as representative bias, availability bias, anchoring and adjustment. Practically it is not possible to have a decision maker who is capable of processing all relevant information and come up with a choice under limited time and constrained conditions. The need to ease processing information leads to heuristics or shortcuts (Riyazahmed & Saravanaraj, 2016). Pandey (2000) defined capital structure as a combination of equity and long term sources of debt. Equity share capital consists of reserves and surpluses while debt is in the form of preference share capital and debentures. A firm's financing choice is essential because proper mix of equity and debt can have benefits such as increasing the value of the firm by maximizing return and ensuring proper utilization of resources of the firm while minimizing cost of capital.

This research was anchored on the following theories: Heuristic Theory whose main proponent is Kahneman and Tversky (1974), Pecking Order Theory that was fronted by Myers and Majluf (1984) and Trade off Theory that was put forward by Kraus and Litzeberger (1973). Heuristic theory is about how people employ rule of thumb or shortcuts when arriving at decisions. Heuristics are often applied by people because they

simplify complex tasks involved in assessing probabilities. Trade off theory postulates that a firm will usually choose what proportion of equity and debt would be appropriate to finance the firm's operation. It usually does this by striking a balance between the cost of acquiring debt and the benefit derived from debt due to tax advantage. Pecking order theory asserts that the presence of information asymmetry makes firms to follow a particular hierarchy of financing because the cost of capital always increases with information asymmetry. Companies therefore give priority to their main sources of financing by first choosing retained earnings then next they issue debt and lastly by issuing equity.

Nairobi securities exchange had 61 listed firms as at 31st December, 2017. It operates under the supervision of Capital Market Authority. It therefore facilitates firms that are interested in issuing either debt or equity (NSE, 2017). Many studies show that there exist heuristic biases on investment decisions at NSE (Athur, 2014; Murithi, 2014 & Makokha, 2015). However, studies focusing on heuristics and capital structure at NSE are very minimal. Wario (2012) for instance show that managers who exhibit overconfidence ended up issuing more debt than equity. Nyakundi, Njuguna and Omboi (2017) also point out that managers who are predisposed to anchoring bias, overconfidence and mental accounting would most likely lean towards debt and equity as opposed to internal sourcing.

1.1.1 Heuristic Biases

According to Parikh (2011), heuristic is a rule of thumb which is often used to arrive at judgments. They are mental shortcuts that people adapt to assist solve problems faster

especially when constrained with time and other factors. In finance heuristics can be a rich source of faster decision making because they ease the process of retrieving information from the memory. However shortcuts can also lead to mental errors. Representativeness, availability, anchoring and adjustment are the three heuristics originally fronted by Tversky and Kahneman (1974). Anchoring is a cognitive bias which shows how human being relies heavily on the initial information (anchor) offered when arriving at decisions. It describes the way human being tend to focus on recent behavior and give little emphasis to long term prevailing conditions (Shiller, 2000).This first piece of information may be irrelevant to the current problem and by relying on it means you are biased and will end up making errors in your final decision. Managers who exhibit anchoring do so because they rely heavily on past information like last stock issue prices and fail to evaluate the real fundamentals required.

Kahneman and Tversky (1974) holds that representative bias is the extent to which an occurrence resembles its parent population in essential features and reflects notable and important characteristics of the process by which it is generated. When persons use representative bias they are likely to make wrong judgments because it depends on stereotyping and similarity. The fact that an event is a representative does not always mean most probable. The biases resulting from this heuristic include insensitivity to predictability, misconception of regression, base rate neglect, the illusion of validity and insensitivity to sample size.

Availability heuristics means the ease at which an event can be brought back to mind (Kahneman & Tversky, 1974). Biases resulting from this heuristics are illusory

correlation and disproportionate risk assessment (due to exposure to negative outcome even if the event is itself rare). The study shows for instance that likely events are easier to imagine than unlikely events. Human beings are most likely influenced by what is personally most relevant, recent or dramatic. At the same time events with associative connections between them are strengthened when they frequently co-occur (Kahneman & Tversky, 1982). Availability heuristic can impact on different spheres of life. Folkes (1988) found that it affects judgments about the product performance. Barber and Odean (2000) argue that traders normally trade in stocks that grab attention because; choosing an appropriate stock among many requires good effort and time. This study issued questionnaires to all managers in charge of financing decisions of all 44 listed firms at Nairobi Securities Exchange to collect data for measurement of heuristic biases.

1.1.2 Capital Structure

Myers (2001) defines capital structure as ways that a firm acquires its finances meant for its overall day to day running and long term growth of business by employing funds from various sources which comprise of equity and debt. Debt could be raised by issuing bonds or issuing long term notes payable. Equity could be raised through issuing preferred stock, common stock or using internal finance. Jensen (1986) postulates that for capital structure to be at its optimal, the market value of the firm should be maximized. Karaa (2011) argues that there are no fixed rules of what constitutes an ideal financing mix of debt and equity. A good capitalization depends on the nature of business, prevailing economic and financial conditions and management belief. However these managers' beliefs may violate the law of rationality (Karaa, 2011). The financing choices

made are of vital importance in influencing a firm's overall day to day activities (Bilgehan, 2014).

A good financing choice of a firm is essential because proper mix of equity and debt can have benefits such as increasing the value of the firm by maximizing returns and ensuring proper utilization of resources of the firm while minimizing cost of capital. Any firm should therefore endeavor to manage its capital structure in order to ensure that it remains in operation and finances its projects (Ross,Waterfield, Jaffe & Jordan, 2009). Debt –to-equity ratio is the commonly used measure of capital structure due to its simplicity in calculation (Azouzi & Jarboui, 2012)

1.1.3 Heuristic Biases and Capital Structure

Human minds can be influenced by cognitive biases which block their impartiality in decision making. In the context of managerial financing decisions, such are heuristics which may result into sub-optimal decisions, and thereafter lower the firm's value (Henao & Borerro, 2017). However heuristics if efficiently applied may improve managerial decisions on capital structure choices because they are faster in decision making (Todd & Gigerenzer, 2000). The presence of heuristic biases in the manager's financing decisions would either increase or decrease the level of leverage of firms. Azouzi and Jarboui (2012) indicated that manager's emotional biases affect their financing decisions. The study supports the pecking order choices when choosing desired capital structure.

Li, Lin and Tse (2017) show that managers would carry their own anchoring bias to the firms they manage. This can be seen when financing managers rely on the past piece of

information offered while arriving at issuing price and fail to consider any new information in the market (McGuckian, 2013). This may constitute selective accessibility approach which makes it biased towards the right procedure in price determination. Managers that exhibit overconfident bias would tend to issue more debts than their rational counterparts (Esghaier, 2017). Control variables are also expected to influence the choice of financing by either increasing or decreasing their leverage level. According to Hackbarth (2008), managers who prioritize growth opportunities usually show higher levels of debts in their capital structure.

1.1.4 Nairobi Securities Exchange

Founded in 1954, it is the largest in East Africa offering a good platform for exchange of securities like equities bonds, treasury bills, and commercial paper among others. It operates under the jurisdiction of capital market authorities. There are 61 listed firms at Nairobi securities exchange (NSE December, 2017).

A number of empirical evidence shows that there exist heuristic biases of firms quoted at Nairobi securities exchange. Wario (2012) for instance show that managers who exhibit overconfident behavior tend to issue more debt than equity. Nyakundi (2017) argues that an optimistic manager would tend to finance operations of the firm by first choosing equity, then debt and finally retained earning while an over confident manager prefers debt to equity finally internal sourcing. The study further observes that managers who are predisposed to anchoring bias would lean towards debt financing as opposed to equity financing. Karanja (2017) also agree that availability and anchoring heuristics have an effect on investment decisions at Nairobi securities exchange.

1.2 Research Problem

There are many studies which indicate that people cannot be relied upon to make accurate probability assessments in many contexts. One such explanation is the use of heuristics (Tversky & Kahneman, 1973, 1974). In a world where knowledge is limited coupled with time and resource constraint, human beings are bound to use shortcuts in arriving at financing decisions (Vetschera, Campo, Pauser & Steiner, 2016). Traditional finance theory relies on fundamental principles in arriving at capital structure. For instance an optimal capital structure should be informed by a reasonable and proportional application of debt and equity to support balance sheet strength in terms of asset base (Loth, 2017). However Modern reviews on determinant of capital structure argue that heuristic biases can affect financing decisions of companies. Heuristics may reduce the cognitive biases associated with decision making in so many aspects: they give the user an opportunity to careful examine signals and/ or alternative choices in decision making; additionally they reduce the work in storing and retrieving information, heuristics are significant in minimizing the cost and time associated with complex decisions making (Shah and Opphhenheimer, 2008).

Firms listed at nairobi securities exchange can be said to be influenced by heuristics as illustraed by a number of scholars. Wario(2012) and Obara (2012) for instance oberserves that overconfidence bias positively affects capital structure of firms listed at nairobi securities exchange. Kuria (2015) points out that Safaricom Ltd has dynamic capability strategies that enable it to achieve a competitive edge both locally and internationally. The study does not tell us the human aspect in terms of managers'

cognitive intuition that may affect the capital structure. Mwikya (2013) indicated that Kenya Airways management was to a great extent responsible for the loss of KSH 26 billion.

A few studies have attempted to bring into perspective the role played by heuristic biases on capital structure of firms. Esghaier (2017) in the study capital structure choices and behavioral biases concluded that there was a positive impact of manager's overconfidence on their pecking order preferences as there was for optimism and overconfidence on leverage levels. Bellouma and Belaid (2016) show that loss aversion, self serving biases, overconfidence, anchoring bias and representative bias have a positive relationship with the manager's decision on working capital structure. Abdin, Farooq, Sulatana and Farooq (2017) also demonstrated that availability and representativeness is the strongest predictor of investment performance followed by overconfidence. Kimeu, Anyango and Rotich (2016) indicated that behavioral factors which included heuristics positively influenced investment decisions at Nairobi securities exchange. The study concentrated on herding, heuristics and rationality. Kungu (2016) findings indicated that anchoring bias, excessive optimism and random walk bias had a significant impact on investor decisions. This observation leads to a conclusion that while international reviews have attempted to look at heuristics in relation to capital structure, local studies have concentrated on investments and heuristic bias with very limited research in capital structure and heuristics. This study sought to answer the question do heuristics affect capital structure decisions of firms listed at Nairobi securities exchange?

1.3 Objective of the Study

To establish the effect of heuristic biases on capital structure of firms listed at Nairobi securities exchange.

1.4 Value of the Study

This study looked at effects of heuristic biases on capital structure of firms listed at Nairobi Securities Exchange. The research will be useful to scholars who are interested in carrying out further research in the area of heuristics. Other determinants of capital structure will come into play. A pool of literature will be added to the existing research on heuristics which scholars and academia will find useful.

This study will assist improve the results of management decisions and organization ability to solve problems faster. Managers will also be able to acknowledge heuristic biases that affect their decision making and why they deviate from fundamental principles. Meaningful framework in strategy formulation may be adopted to mitigate negative impact of these heuristics. A lot of research show that cognitive bias is not that evil since when decisions are to be made faster, it comes in handy therefore managers will be able to utilize heuristic as a tool to faster decision making.

Nairobi Securities Exchange will find this important especially where most firms listed on NSE have managers, analysts and investors being affected by heuristic bias. NSE can therefore formulate a policy that will guide them on how to not only avoid the influence of these heuristic biases, but also utilize the positive aspects of heuristics in financing decision

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter addresses theoretical review, determinant of capital structure, empirical review, conceptual framework and a summary of empirical review.

2.2 Theoretical Review

This study adopted three theories where heuristics and capital structure are anchored. The theories discussed were Heuristic theory (kahneman & Tversky, 1974), Trade Off theory (Kraus & Litzberger, 1974) and Pecking Order theory (Myers &Majluf, 1984).

2.2.1 Heuristic Theory

Tversky and Kahneman (1974) when developing the theory defined heuristics as simple rules of the thumb. They are usually adopted in order to assist break down a complex problem into a simpler one. Typically people employ them when faced with complex situations coupled with time constraint and other factors like insufficient information. These rules may work well in some situations but under certain circumstances they may lead to systematic errors (Kahneman & Perikh, 2011). According to Tversky and Kahneman (1981) heuristics are strategies that could be used to solve a number of problems. However they do not usually yield the right solutions. People often use heuristics to solve complex problems in uncertain environment (Brabazon, 2000). The original heuristics developed were named representativeness, availability, anchoring and adjustment.

Availability heuristic is a mental shortcut which makes individuals to solve problems by considering how easy it is to bring it to mind. The biases with availability heuristics are recent events, relevant events and dramatic events. It can have a positive outcome when it makes people careful about dangerous situations. Representativeness is a mental shortcut that helps us in making decisions comparing to our mental prototypes. It believes that small numbers are representative of whole in similar settings. Anchoring bias is where people arrive at a judgment by focusing from a starting point and adjust upwards or downwards until a final decision is reached. Heuristic theory looks at managerial decisions from cognitive and emotional perspective. This theory presupposes that judgments and reasoning are made possible by the actualization of intelligent mental models which are usually brought to mind by preconscious heuristics. This process brings into context the problem so that relevant goals at hand are maximized. At the very least models undergo processing so as to infer or make judgments applicable to the current instructions; however a much more active intervention may result into improvement or substitution of failed models initiated by the heuristic systems.

2.2.2 Trade off Theory

Fronted by Kraus and Litzenberger (1973), the study looks at a balance between the tax advantage derived from debt and the dead weight costs associated with bankruptcy. It states that there exist an optimal capital structure which comprise of debt and equity. With this ratio there is a tax benefit advantage of financing with debt and also a disadvantage of the cost of debt which includes bankruptcy cost of debt and non-bankruptcy costs like high staff turnover. Another gain of financing by debt is the mitigation of the managers-shareholders agency conflicts because it restricts managers'

access to free cash flow. However agency costs inflicted by shareholders and debtors conflicts may result (Jensen & Meckling, 1976). According to Modigillian and Miller (1963) there are other costs as a result of issuing more debt and they include financial distress.

Myers (2001) argue that a firm would continue to acquire debt up to a level where the tax shield gain from extra debt is cancelled by the inherent costs of financial distress from the additional debt. The theory brings out the fact that managers prefer more debt financing to equity due to tax benefit on debt, (Myers, 2001). It is important to point out that bankruptcy cost, agency conflicts, taxes and adverse selection have been emphasized as the main reason for use of debt and equity financing by corporate firms. However heuristic biases have been left out as a factor to explain the same.

2.2.3 Pecking Order Theory

Fronted by Majluf and Myers (1984), the theory postulates that there is always asymmetric information exhibited by firms. This is where insiders who include managers have more information about shares than the other stakeholders. This then implies that the cost associated with financing the firm's operation increases with information asymmetry. Therefore firms choose to follow a certain hierarchy of financing. They begin by internal financing then if internal financing is not enough debt issue is the next option and when no other option is available, equity finance is considered last. This is because existence of information asymmetry makes outsiders to think that managers would issue equity at a time when the firm is overvalued and hope to have an edge over it. At this point, equity therefore becomes a less desirable way of raising finance. Outside investors

take this as an incentive to lower new equity. The form of financing that a company chooses is usually interpreted as a signal that it needs external finance. This signaling effect can send a message to outside investors on how they ought to view the firms as a hub for investment.

Empirical reviews have shown that pecking order theory may not be prioritized when determining a firm's financing decisions. Nonetheless a number of researches show that there could be a good level of approximation of truth. Consider a case in point by Myers and Shyan-Sunder (1999), Fama and French (2015) who showed that some areas of data could be better explained by pecking order than trade off. On the other hand Goyal and Frank (2009) show that, pecking order, among other things does not hold especially for small firms due to information asymmetry. Grinblatt(2005); Holmes (1991) and Quan (2002) observes that pecking order theory is best applicable to medium sized firms' financing choices since debt is the main source of finance for small and medium enterprise where owners are usually the managers of businesses that do not want to dilute ownership. They too agree that companies opt for internal financing of any sort and incase of any external then debt is considered over equity.

This theory links the heuristic biases of managers to the financing options as it relates to the presence pecking order choice. Managers might posses the heuristic biases when choosing the financing options in terms of debt and equity. This theory has been used to conceptualize the dependent variable, which is a capital structure decision. Depending on

the biases managers' posses, they may be influence by heuristic bias biases in their financing decisions.

2.3 Determinants of Capital Structure

This study used heuristic biases as the determinant of capital structure. It is a composite of representative bias, availability bias and anchoring and adjustment. The study observes that financing choices are also influenced by Firm size, level of profit, tangibility of assets and growth opportunities (Bauer, 2004). This study adopted the four as control variables to reduce the effects of unexplained variations.

2.3.1 Heuristic Biases

According to fuller (2000) heuristics can be a powerful tool in decision making, however if used in the wrong context it can be source of errors. Schwartz (2010) indicated that heuristics are shortcuts that are used to make judgments easier by simplifying the chances associated with difficult tasks and eliminate the need for complex calculations. Heuristics can make decision making much easier for instance in a situation where the decision maker (manager) is unaware that an alternative method for financing could be available despite the existence of the ideal solution. Moreover the manager may find it too costly to seek advice from elsewhere. It could further be difficult for the manager to obtain sufficient information or better still time may be limited while the emotional features of the decision may be so intense that they could influence his decision. (Lai, 2011)

2.3.2 Size

Firms with more assets will usually have higher leverage (Murray & Gayol, 2009). This is because increases in firm size means lower transaction costs in borrowing hence have ability to access financial markets and lower information asymmetry. Smaller firms may

alternatively find it costly to use debt financing in their operations. According to Al-Sakram (2001) smaller firms tend to employ equity financing while larger firms employ debt.

2.3.3 Profitability

Profitable firms tend to have lower leverage (Murray & Gayol, 2009). This is due to internal financial facility. According to Baker and Wurgler (2002) profitability entails Earnings before Interest, tax and Depreciation/total Sales.

2.3.4 Tangibility

According to Cuong (2014) tangibility is the extent to which firms retain their asset investment in fixed form. Oliver (2005) defines tangibility as the ratio of property plant and equipment to total assets. When firms exhibit more tangible assets, their leverage increases due to the collateral value of assets (Rajab & Zingale, 1995). Firms' leverage level increases with more tangible assets (Murray & Gayol, 2009). Wessel and Titman (1988) showed that firms with more fixed assets can have higher leverage due to their ability to offer collateral.

2.3.5 Growth Opportunities

Equity financing is appropriate for firms that show future growth opportunities since more levered firms will usually take up profitable investments (Myers, 1977). An indicator of growth is increase in total sales or the total assets (Onalopo, 2010). Pecking order theory asserts that firms that experience growth opportunities would invest more. They therefore issue more debt to finance their investments. However firms that experience more growth opportunities tend to be financed more by equity than debt in order to take up more profitable opportunities.

2.4 Empirical Review

Azouzi (2012) carried out a research on how CEO's emotional bias affect financing decisions using Bayesian network method. The study examined the behavioural aspects in the determinants of firms' capital structure. Questionnaires were issued to 100 Tunisian managers. It was concluded that the CEO's financing choice analysis was influenced by behavior bias. For instance CEO's behavior bias was consistence with pecking order theory where they preferred internally generated resource to finance their assets. Optimism, loss aversion and overconfidence were exercised when the CEOs financed their projects by first internal resource followed by debt last equity

Barros and Da Silveira (2007) employed panel data estimation technique to examine 153 non-financial Brazilian firms on the Sao Paulo stock exchange. The study period was between 1998 and 2003. Over-confidence and optimistic managers were found to have a tendency of choosing more levered financing choices than other managers. Profitability, dividend payment, size and tangibility as well as corporate government were found to be other variables explaining capital structure. The entrepreneurial nature of managers determined the proxies adopted for managerial overconfidence and optimism, specifically where the manager was a founder or a hired executive. It was argued that despite the difference in overconfidence and optimism, they had a close relationship and that owner managers would display such cognitive biases more often than non-owners (employees)

Filbeck, Gorman and Preece (1996) hypothesized that firms make financial choices based on the capital structure decisions of their industry leader. The study period was 1981 to 1990. They tested the Patel, Zeckhuser and Hendricks (1996) whose hypothesis was that

firms tended to align their capital structure with the industry and they did not find any agreement in firms' herding behavior and then they tested the assumption that firms base their financing choices on following some industry leader. They found a mild support for this hypothesis.

Li, Lin, and Tse (2017) carried out a research to find out whether CEOs exhibit anchoring bias when arriving at corporate financing decisions. The measure of anchoring bias was based on 52-week share price high. The study period was between 1996 and 2012. Data for CEO insider selling was collected from four filings in Thomson Reuters Insider Filing database. The target population was 10486 firms with a sample of 7149 firms. The findings were that the CEOs carry their own anchoring bias to the firms they manage. It was concluded that CEOs anchoring bias is an essential determinant in financing decisions of corporate firms. The paper proposed future research on the managerial behavior in the area.

Hovakimian and Hu (2016) did study looked at The Impact of Reference Point Prices on Seasoned Equity Offering. COMPUSTAT data between1974 to 2014 was used with a sample of 2871 SEO. The study's findings were consistence with the hypothesis that managers use historical high prices as a reference point when they make Secondary Equity Offering decisions. They concluded that financing decisions were affected by historical high prices.

Khan, Naz, Quresh and Ghafoor (2017) carried a research on Heuristics and Stock buying decisions on Malaysian and Pakistan Stock market. The heuristics under study were

representative, availability, anchoring and adjustment. The study used 1000 questionnaires to sample out Malaysian and Pakistani investors in stock market. Convenient sampling was used. 300 respondents were received, out of which 240 had valid data. Descriptive statistics was adopted. The results showed that there is influence of heuristics in stock buying decisions.

A study carried by Murithi (2014) on anchoring bias and investment decision making by individuals in Kenya used a sample of 102 investors. The study employed two sub-samples of 51 each. Investors were also categorized according to age and experience. Those who were 30 years and above and at least 7 years investing experience were put in one category while those below 30 years with less than 7 years experience were put in another category. The sample and sub-sample were processed and the analysis was done using SPSS Software and Microsoft excel. The outcome revealed that investors were influenced by anchoring bias in their investment choices. It could however not be established if a given group of investors was affected more than the other.

Obara (2015) carried out a research on the effects of heuristic biases on investment returns by unit trusts in Kenya. Descriptive research design was employed with a census survey of 56 different funds operated by the 18 unit trust companies. Questionnaires were employed to collect data and analysis done by use of SPSS computer software. It was established that unit trusts returns were affected by representative bias, overconfidence and anchoring bias.

Athur (2014) examined how behavior biases affect investment decisions of individual investors in Kenya. The study looked at herd Instinct, overconfidence and anchoring biases. The study used a descriptive research design. The population consisted of all individual investors in Kenya. A snowball sampling technique with a convenient sample of 30 respondents was used. The study use primary and secondary data. The findings showed a significant correlation between individual investors' herd instinct, cognitive dissonance, representativeness, hindsight bias and illusion of control bias.

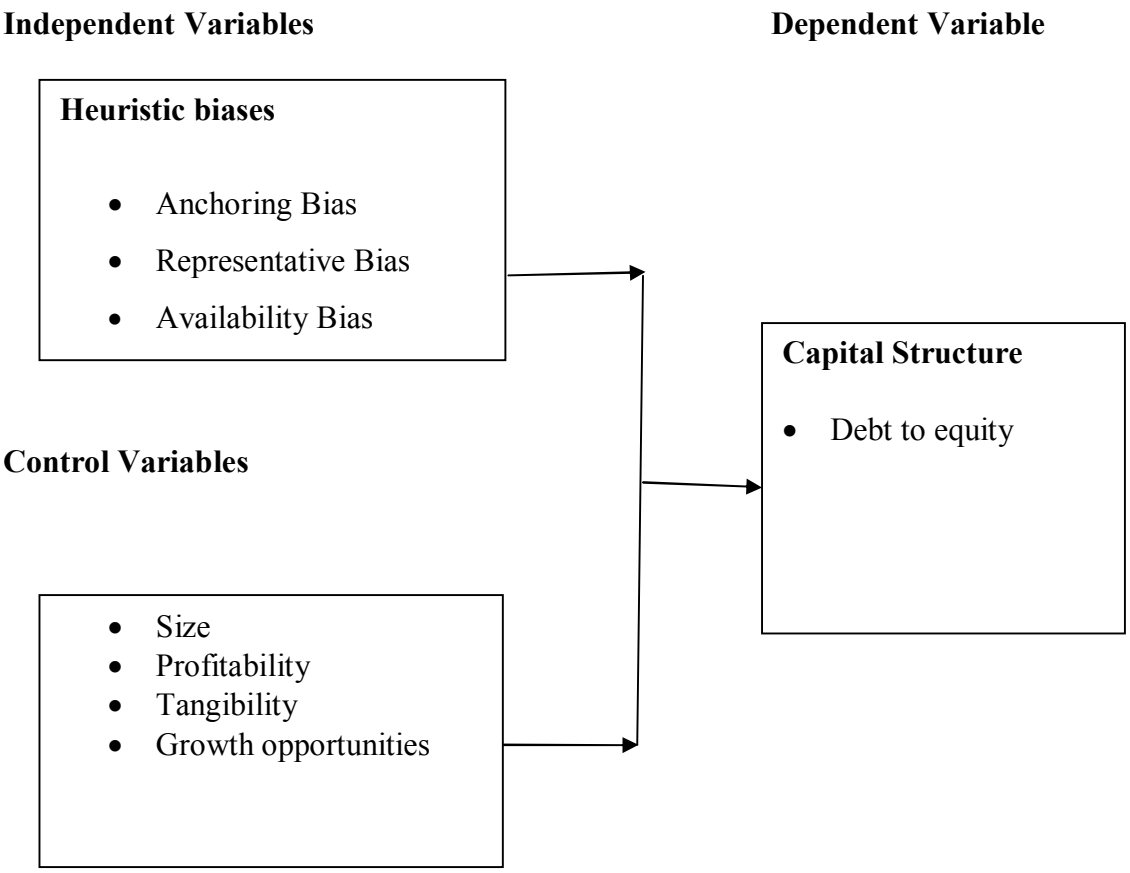
2.5 Summary of Empirical Review

The empirical review has shown that heuristic bias has an effect on investment decisions. A nascent of evidence also indicates that heuristic bias has an effect on financing decisions. However this evidence is only limited to a few heuristics namely anchoring bias, herding behavior, managerial optimism and overconfidence. Equally local studies have very little evidence on heuristic bias and capital structure. This study therefore concluded that there was need to contact a research on the effect of heuristic biases on capital structure of firms listed on Nairobi security exchange.

2.6 Conceptual Framework

The independent variable for this study was heuristic biases. It is a composite variable of anchoring bias, representative bias and availability bias. When manipulated, they have an effect on the dependent variable which is capital structure. Control variables chosen were firm size, profitability tangibility and growth opportunities. This is meant to mitigate the unexplained variations in capital structure and heuristic biases. The diagrammatic representation of the conceptual framework is shown in figure 2.1.

Figure 2.1: Conceptual Framework



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the research design, the population of the study, the data instruments and the data techniques. It will also give an outline of the approach that was useful in gathering data to assist answer the research question. Finally stated the methodology that was used and how data was collected and analyzed in order to come up with findings, interpretation and conclusions.

3.2 Research Design

This study employed descriptive research design. It is defined as the process where data is collected with an aim of testing a hypothesis and respond to questions concerning the subject status of the study at that moment. Descriptive research design would endeavor to determine and report the way things are. It describes such things as observable behavior, values, attitudes and features. Using this design ensured in depth analysis and description of a variety of phenomena being investigated hence it was appropriate for this study (Churchil, 1991)

3.3 Population of the Study

The population for the research consisted of 44 companies listed at Nairobi securities exchange (NSE 2017). A census survey was adopted to collect data from these 44 firms listed at Nairobi Securities Exchange. 11 firms from the banking sector and 6 from the insurance sector were excluded because they are regulated.

3.4 Data Collection

Data to test the biases was collected using a semi-structured questionnaire and Likert scale tables. 44 questionnaires were administered to 44 financial managers who are in charge of financing decisions. Drop and pick procedure was adopted. These questions

were meant to enhance production of relevant evident upon which information for analysis and thereafter conclusions was drawn. Secondary data was used for capital structure and control variables. The secondary data to be collected included total debt to equity ratio to measure capital structure, total sales to measure size of the firm, return on assets ratio to measure profitability of assets, fixed assets to total assets ratio to measure tangibility and finally ratio of fixed assets for current year to total assets previous year to measure growth opportunities was used. The source of this data was published financial statements from online sources and past newspapers. The study period was 2015, 2016, 2017 and 2018 financial years.

3.5 Validity and Reliability

Validity refers the accuracy with which a test measures what it is intended to measure (Mason & Bramble, 1989). Three basic approaches are construct validity, content validity and criterion related validity. The study ensured validity by pilot questionnaires so that any response that was out of context could be re-evaluated and proper questions asked.

Research instruments are said to be reliable if they consistently yield similar results on repeated trials. It should give consistence results when using different instruments (Carmine and Zeller, 1979). In order to ensure reliability the study used (Cronchbach's coefficient of alpha, Cronchbach, 1946). The coefficient is considered better the closer it gets to 1.0. In general $\alpha<0.6$ are considered to be poor while $0.7 \leq \alpha \leq 0.8$ is considered desirable.

3.6 Regression diagnostics

To test normality the study used a histogram. Linearity was tested using a scatter diagram while multicollinearity was tested using Variance Inflation Factor (VIF)

3.7 Data analysis

Data was analyzed using statistical tools which are ANOVA and regression model in order to know the relationship and effect of heuristics on capital structure. Data collected from the questionnaires and published financial reports were tabulated, coded and processed using SPSS statistical software.

3.7.1 Analytic Model

The analytic model of the study comprised of the capital structure as the dependent variable and heuristic biases as the independent variable. Heuristic bias constituted a composite of three variables anchoring bias, representative bias and availability bias. Size, profitability, tangibility and growth were used as control variables. Control variables were chosen to mitigate the unexplained variations in the capital structure. This is illustrated below;

$$Y = \beta_o + \beta_1 X_{1+} \beta_2 X_{2+} \beta_3 X_{3+} \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_{7+} €$$

Where:

Y = Capital Structure, X_1 = Anchoring bias, X_2 = Representative bias, X_3 = Availability bias, X_4 = size of the firm, X_5 = profitability, X_6 = tangibility, X_7 = growth opportunities,€ = Error term, β_0= Constant term$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ are the regression co-efficient of independent variables.

3.7.2 Operationalization of the Variables

Variable	Indicator	Measurement	Literature
Capital structure	• Debt to equity	Total debt/equity	Azouzi and Jarboui (2012)
Anchoring Bias	• Insufficient adjustment process • Attitude change • The selective accessibility approach	Mean score	Nyakundi (2017)
Representative bias	• Insensitivity to sample size • Base rate neglect • Insensitivity to predictability	Mean score	Nyakundi (2017)
Availability bias	• Relevant events • Recent events • Dramatic events • Disproportionate risk assessment	Mean score	Nyakundi (2017)

Size of the Firm	• Level of sales turnover	Ln. total sales. (ln= natural logarithms)	Oliver (2005)
Profitability	• Return on Assets(ROA)	ROA= NetIncome/AverageTotalAssets or EBIT/TOTAL SALES	Bauer (2004),Baker and Wurgler (2002)
Tangibility	• Fixed assets/total assets	TotalAssets – CurrentAssets)/Total Assets	Bauer (2004)
Growth Opportunities	• Fixed assets/total assets	$(TotalAsset_t – TotalAssets_{t-1})/Total Assets_{t-1}$	Bauer (2004)

3.7.3 Test of Significance

This study used a t-test statistics and was tested at 5% level of significance. The co-efficient of determination (r^2) was used to measure the proportion of the total variation that could be explained by the independent variable. The higher the r^2 the more reliable it was.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This study's objective was to establish the effect of heuristic biases on capital structure of firms listed at Nairobi securities exchange. This chapter has dealt with the statistical analysis of the research findings of the study. SPSS was employed to analyze data. The study findings were summarized using descriptive statistics, correlation analysis and regression analysis which were presented in tabular forms.

4.2 Response Rate

The study targeted 44 companies listed at Nairobi securities exchange (NSE 2017). A census survey was adopted to collect data from these 44 firms listed at Nairobi Securities Exchange. Eleven firms from the banking sector and 6 from the insurance sector were excluded because they are regulated. 44 questionnaires were administered to financial managers who were in charge of financing decisions. Drop and pick procedure was adopted. 36 questionnaires were fully filled and returned. Mugenda and Mugenda (1999), asserts that if the respond rate is 50% it is considered adequate, a 60% respond rate is good while that above 70% very good. From this therefore, 82% respond rate is very good.

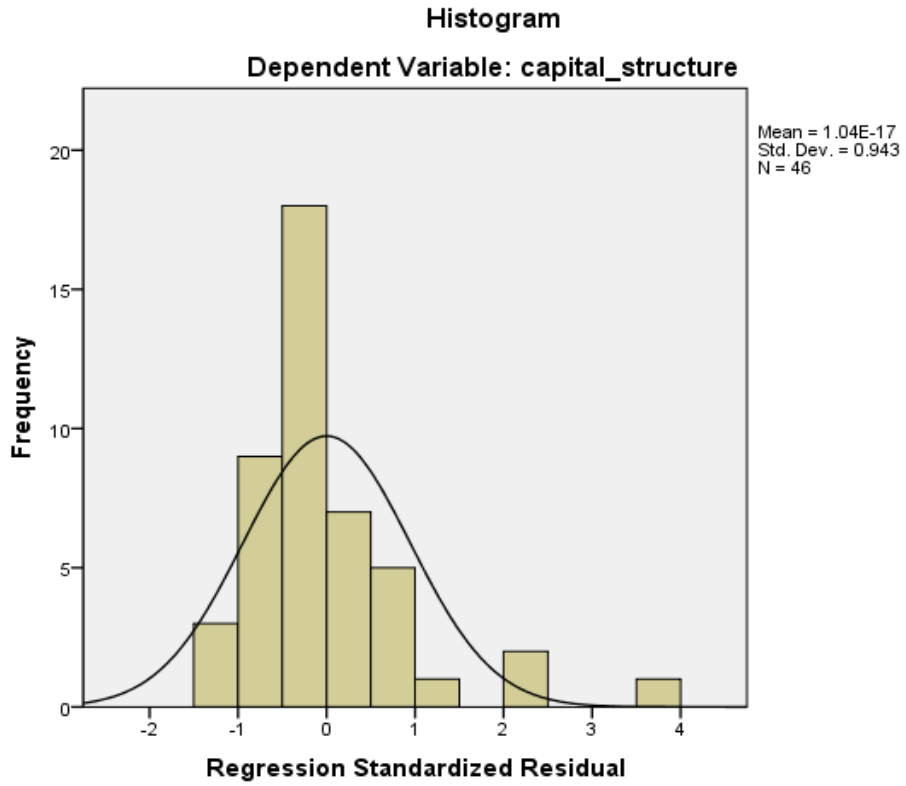
4.3 Diagnostic Test

This test was meant to confirm the assumptions of multiple regression analysis so that the model s within acceptable limits.

4.3.1 Test of Normality

To test for normality the study used a histogram. From the figure 4.3 there is a normal distribution which means that the variables had a normal distribution.

Figure 4.3: Histogram

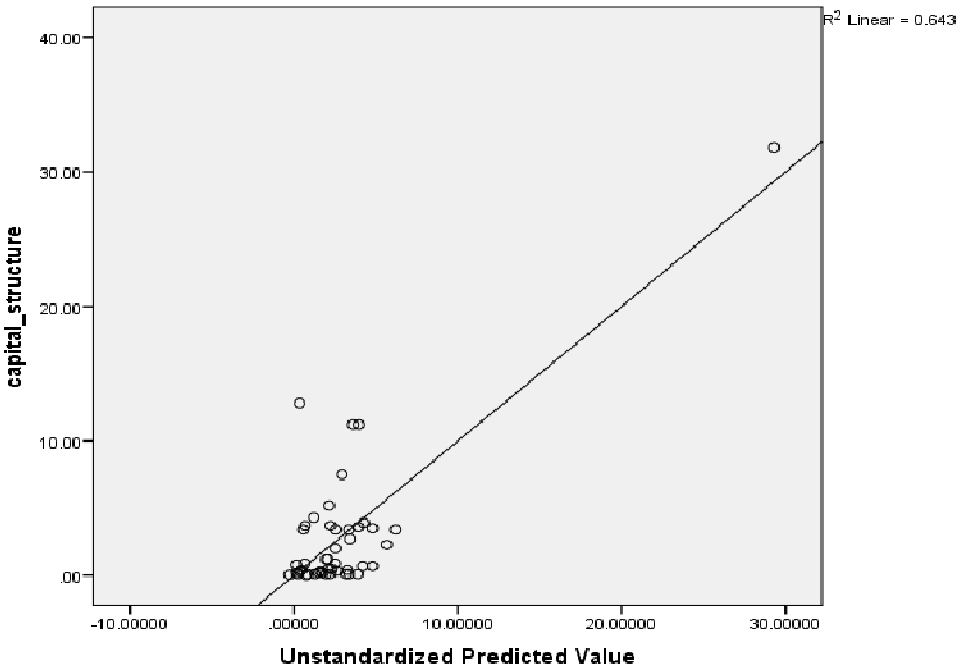


Source: Research data 2018.

4.3.2 Linearity

To test for linearity the study used a scatter plot. From the scatter plot many values are concentrated around the line of best fit hence implying linearity assumption achieved.

Figure 4.4: Scatter Plot



Source: Research data 2018

4.3.3 Multicollinearity.

To test for multicollinearity the study used a variance inflation factor (VIF). (VIF >2) for all predictor variables indicates multicollinearity problem. From the table 4.3 (VIF <2) hence multicollinearity is within acceptable limits. This means that predictor variables are not linearly correlated.

Table 4.3: Multicollinearity

Coefficients			
Model		Collinearity Statistics	
		Tolerance	VIF
	Heuristic bias	.893	1.119
	Firm size	.877	1.141
	Profitability	.928	1.077
	Tangibility	.869	1.150
	Growth opportunities	.943	1.061
a. Dependent Variable: capital structure			

4.4 Descriptive Analysis

This study analyzed the data collected and tabulated the median, mean, mode and standard deviation of the independent variables heuristic bias (Anchoring Bias, Representative Bias and Availability Bias) and the dependent variable (capital structure). Control variables were: tangibility, firm size, growth opportunities and profitability. From the results of the descriptive statistics, heuristic biases had a mean of 3.8191, median of 3.6700, mode of 3.67 and standard deviation of 0.39497. Firm size had a mean of 13.6386, a median of 13.200, mode of 13.20 and standard deviation of 2.86355. Profitability had a mean of 0.3374, median of 0.100, mode of 0.1, and standard deviation of 1.84562. Tangibility had a mean of 0.6883, median of 0.6, mode of 0.8 and a standard deviation of 1.15462. Growth opportunity had a mean of 3.9698, median of 0.35, mode of 0.1 and standard deviation of 5.74388. Capital structure had a mean of 2.6675, median of

0.8, mode of 0.1 and standard deviation of 5.00586.The table 4.4 gives the findings summary of the descriptive statistics.

Table 4.4: Descriptive Statistics

Descriptive Statistics

	capital structure	Heuristic bias	firm size	Profitability	Tangibility	Growth opportunities
N Valid	53	46	57	58	46	46
Mean	2.6675	3.8191	13.6386	.3374	.6883	3.9698
Median	.8000	3.6700	13.2000	.1000	.6000	.3500
Mode	.10	3.67	13.20	.10	.80	.10
Std. Deviation	5.00586	.39497	2.86355	1.84562	1.15462	5.74388

Source: research data 2018

4.5 Correlation Analysis

Pearson correlation matrix was employed to examine multicollinearity and check whether there was any correlation between any two predictor variables at 5% level of significance. From the table 4.5, heuristic bias had a weak positive correlation with capital structure of ($r = 0.024$, $p = 0.872$). Firm size had a weak negative correlation of($r = -0.036$, $p = 0.798$), profitability had a weak positive correlation of($r = 0.016$, $p = 0.911$), tangibility had a strong positive correlation of ($r = 0.749$, $p < 0.01$) and growth opportunities had a weak negative correlation of ($r = -0.021$, $p = 0.892$). Only tangibility was statistically significant in explaining variations in capital structure. All other independent variables are statistically insignificant in explaining changes in capital structure.

Table 4.5: Pearson Correlations.

Correlations							
		Capital structure	Heuristic Bias	Firm Size	Profitability	Tangibility	Growth opportunities
Capital Structure	Pearson Correlation	1					
Heuristic Bias	Pearson Correlation	.024	1				
	Sig. (2-tailed)	.872					
Firm Size	Pearson Correlation	-.036	-.074	1			
	Sig. (2-tailed)	.798	.623				
Profitability	Pearson Correlation	.016	-.173	.152	1		
	Sig. (2-tailed)	.911	.249	.259			
Tangibility	Pearson Correlation	.749**	.254	.211	.018	1	
	Sig. (2-tailed)	.000	.088	.159	.906		
Growth opportunities	Pearson Correlation	-.021	-.014	.167	-.094	-.076	1
	Sig. (2-tailed)	.892	.925	.267	.533	.616	
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Research data 2018

4.6 Regression Analysis

In order to establish the overall variations in capital structure that can be explained by heuristic biases, firm size, profitability, tangibility and growth opportunities, the study carried out a multiple regression analysis. The findings are presented in subsequent tables.

4.6.1 Model Summary

In order to establish the overall effect of heuristic biases on capital structure of firms, an average score for all the three heuristic biases was computed and the table 4.6 gives a model summary of the results. From the model summary, R =0.802, R^2 = 0.643 while adjusted R^2 = 0.598. This implies that 59.8% of independent variables (heuristic biases, firm size, profitability, tangibility and growth opportunities) can explain variations in capital structure. The remaining 40.2% can be predicted by other variables not considered in this study.

Table 4.6: Model Summary.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.802[a]	.643	.598	3.37808

a. Predictors: (Constant), Growth opportunities, Heuristic bias, firm size, Profitability, Tangibility

Source: Research Data 2018

4.6.2 ANOVA.

The results of ANOVA indicated that the model was significant in predicting changes in capital structure using predictor variables. ($F(5, 40) = 14.397$, $p < .001$). This is shown in the table 4.6.1.

Table 4.6.1: ANOVA

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	821.424	5	164.285	14.397	.000[b]
	Residual	456.456	40	11.411		
	Total	1277.880	45			

a. Dependent Variable: capital structure

b. Predictors: (Constant), Growth opportunities, Heuristic bias, firm size, Profitability, Tangibility)

4.6.3: Regression Coefficients.

When an average score from a composite of heuristic biases (Anchoring bias, Representative bias and availability bias) is employed and control variables included, the study findings are tabulated in the table 4.6.2 below. The coefficients give the following regression equation:

$$Y = 16.272 - 2.814X_{(1,2,3)} - 0.413X_4 + 0.029X_5 + 3.962X_6 + 0.077X_7$$

Where $X_{(1,2,3)}$ = heuristic biases, X_4 = firm size, X_5 = profitability, $X_{6,}$ = tangibility, X_7 = Growth opportunities.

From the above equation if all independent variables were zero, then capital structure would be expected to be 16.272 units. However when independent variable (heuristic bias) and the control variables are employed then a unit change in heuristic bias reduces leverage level by 281.4%, implying reductions in leverage levels. A unit change in firm size will lead to a reduction in capital structure by 41.3%, meaning a reduction in leverage levels. A unit change in profit levels increases leverage levels by 2.9%. A unit change in tangible assets increases leverage levels by 396.2%, while a unit increase in growth opportunities will lead an increase in capital structure by 7.7%.

The p values for independent variables were 0.043, 0.022, 0.912, $p < 0.001$ and 0.399 for heuristic biases, size, profitability, tangibility and growth opportunities respectively. This implied that statistically, heuristic bias, firm size and tangibility were significant in explaining variations in capital structure. However statistically insignificant variables were; profitability and growth opportunity. Nonetheless the constant has a $p < 0.05$ hence making the model to be statistically significant in explaining changes in capital structure. This is tabulated in the table 4.6.2.

Table 4.6.2: Coefficient of Independent variables

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	16.272	5.803		2.804	.008
Heuristic bias	-2.814	1.349	-.209	-2.086	.043
Firm size	-.413	.173	-.241	-2.385	.022
Profitability	.029	.263	.011	.111	.912
Tangibility	3.962	.468	.859	8.471	.000
Growth opportunities	.077	.090	.083	.852	.399

a. Dependent Variable: Capital structure

4.7 Discussions and Findings

The objective of this research was to ascertain the effect of heuristic biases (anchoring bias, representative bias and availability bias) on financing choices of firms listed at Nairobi securities exchange. Control variables were also added to mitigate the unexplained variations in capital structure. 44 questionnaires were issued to key financial managers of 44 listed firms.

Pearson correlation was run to determine the relationship between leverage and individual predictor variables. Heuristic biases and capital structure were found to have a weak positive correlation that was not statistically significant. ($r = 0.024$, $p>0.05$). This implied that heuristic bias was not significant in explaining variations in capital structure. Azouzi(2012) revealed a positive correlation between optimism and internally generated resources. These results were not in agreement with Wario (2012) who tested overconfidence bias on capital structure and found a strong positive correlation between

the two variables. Firm size had a weak negative correlation that was not statistically significant. ($r = -0.036$, $p>0.05$), the implication was that firm size was not significant in explaining changes in capital structure. Tomak (2013) also showed a weak correlation between capital structure and firm size, profitability and tangibility. However their p values were < 0.05 implying statistical significance. Profitability had a weak positive correlation that was not statistically significant, ($r = 0.016$, $p>0.05$). Mwaura (2017)'s results differed with this study since the outcome showed that firm size and profitability had a positive and negative correlation respectively hence in disagreement.

Tangibility had a strong positive correlation which was statistically significant. ($r = 0.749$, $p <0.001$). This did not concur with Tomak (2013) whose outcome showed a weak correlation between tangibility and capital structure. Growth opportunities exhibited a weak negative correlation ($r = -0.021$ $p <0.05$). Otieno(2013) found a positive correlation of growth opportunities with capital structure hence does not concur with this study results. Only tangibility was statistically significant in predicting changes in capital structure all other independent variables were statistically insignificant in explaining changes in capital structure.

The model summary in regression analysis revealed that 59.8% of capital structure changes could be explained by independent variables. The remaining 40.2% could be explained by other variables not included in this study. Regression analysis had the following results: a constant term of 16.272 implying that if there was no heuristic biases affecting capital structure and also no control variables employed, then capital structure

would be equal to 16.272 units. However with these predictor variables then a unit increases in heuristic biases would result in a decrease in capital structure by 281.4%. This is in agreement with Hovakimian and Hu (2016) study which concluded that financing decisions were affected by historical high prices. Nyakundi (2017) findings on how behavior affects ranking of financial institutions show that managers who are predisposed to anchoring bias would go for equity financing more than debt. Other biases which include overconfidence, over optimism, regret aversion, mental accounting also showed similar results. Karaa (2011) found out that anchoring managers avoid debt and opt for internal financing. Anchoring being one of the heuristics chosen for the study means the study agrees with these research findings. Kuria, Kiragu and Riro (2018) study findings also indicated that heuristic biases had a negative effect on human decision making process. Their research looked at effects of heuristics on real estate's performance in Kenya.

For control variables a unit change in firm size will result into a decrease in capital structure by -0.413 units. There is a mixed results from past literature for instance Tesfaye and Minga (2013)'s study whose research revealed a negative effect of firm size on leverage levels is in agreement with this research findings. Otieno (2015) found a positive associations between firm size and leverage levels, while Murray and Gayol (2009)'s study asserts that large firms tend have low levels of leverage due to large asset base. A unit change in profit level increases capital structure by 0.029 units. Githira and Nasieku(2015) found similar results where profit and leverage levels were positively related. Murray and Gayol (2009) also contend that profitable firms tend to have higher

leverage. A unit change in tangibility will result into an increase in capital structure by 3.962 units. This was largely expected since most past literature content that companies whose tangibility level is high would tend to exhibit higher leverage levels due to their collateral nature (Otieno. 2013), (Rajab & Zingale, 1995), (Wessel & Titman, 1988). A unit change in growth opportunity will lead to an increase in capital structure by 0.077. Theoretically growth is associated with more leverage levels as they tend to take up profitable investments (Myers, 1977).

The results of F test showed ($F(5, 40) = 14.397$, $p < .001$).This implied that the model was statistically significant in explaining variations in capital structure. This agrees with Nyakundi(2017) whose F statistics was significant at $p<0.001$ in the review of heuristics and ranking of financial institutions. Here the specific heuristic was anchoring bias.

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the results of the analysis and conclusions drawn from the findings. Policy recommendations have also been suggested to the relevant parties for consideration in decision making. The chapter has further highlighted the shortcomings encountered during the study and suggested areas for further research.

5.2 Summary of the Findings

Correlation analysis revealed a weak insignificant positive correlation between heuristic biases and capital structure ($p > 0.05$). Firm size had a weak insignificant negative correlation with capital structure ($p > 0.05$). Profitability had a weak insignificant positive correlation with capital structure ($p > 0.05$). Tangibility had a strong significant and positive correlation with capital structure ($p < 0.01$). Growth opportunities had a weak and insignificant negative correlation with capital structure ($p>0.05$). Overall all variables had a weak correlation with capital structure except for tangibility which had a strong correlation with capital structure. This meant that increases in these variables were not correlated with changes in capital structure except for tangibility. This could be attributed to lack of adequate control variables in the model.

Regression analysis gave the following results($R= 0.802$, $R^2 = 0.643$, adjusted $R^2 =0.598$). This implied that 59.8% of capital structure could be explained by independent variables (heuristic bias, firm size, profitability, and tangibility and growth opportunities). Statistically significant variables were heuristic bias with a p value of 0.043, firm size

with p value of 0.022 and tangibility with p <0.001. Heuristic biases with a coefficient of -2.814 implied that a unit change in heuristic bias will result into a decrease in capital structure by 2.814 units. Based on these research findings, most managers responded to agreeing using heuristic biases at an average value of 4. This implies more heuristics can result into lower leverage levels. This is contrary to pecking order theory where firms would choose internal financing first before debt and equity.

Firm size influenced capital structure negatively. This demonstrates that large firms in this review preferred low level of debt and more equity. It could be attributed to the changing dynamics in financing because literature shows that larger firms usually go for debt financing due to their large asset base (Al-Sakram, 2001). Profitability had a positive influence capital structure. This research shows that profitable firms were more leveraged than unprofitable firms. This could be attributed to the fact that the use of financial leverage increases the company's profitability since they are able to acquire more assets using debt. Further argument would be that firms were not ploughing back their profits therefore forced to acquire more debt to finance their assets. Trade off theory would agree with these research findings where firms prefer debt financing due to tax benefit derived from debt financing (Myers, 2001).

Tangibility had a positive influence on capital structure. The implication was that during this study period firms which had more tangible assets used more debt to finance their operations. On average past literature is in agreement with these findings. According to Otieno (2013) asset structure are important in enabling firms to access credit facility. This

is due to their collateral nature. Asset base also reduce adverse selection and moral hazard (Jensen & Meckling, 1976). Rajab and Zingale (1995) study showed that companies whose tangibility level was high were more leveraged due to their ability to offer collateral. Growth opportunities influenced capital structure positively. This implies that from this research, firms listed at Nairobi securities exchange were able to grow by use of debt financing. This could be attributed to many credit facilities currently available in the country hence they took advantage so that they could grow their firms. Myer (1977) argue that equity financing is appropriate for future growth opportunities hence does not agree with this study findings. The analysis of variance (ANOVA) showed that the regression equation is significant at $p < 0.001$ implying that all the independent variables were significantly able to explain variations in capital structures at 99% confidence interval.

5.3 Conclusion

The study revealed that heuristic biases significantly and negatively influenced capital structure of firms listed at Nairobi securities exchange. This study therefore concludes that heuristic biases reduce the leverage levels of firms hence have a negative effect on capital structure of firms listed at Nairobi securities exchange.

This study results also showed that firm size significantly and negatively influenced the capital structure of firms listed at Nairobi securities exchange. This research concludes that larger companies have lower leverage levels in capital structure of firms listed at Nairobi securities exchange. This research also revealed that profitability insignificantly and negatively influenced capital structure of. This study therefore makes a conclusion

that profitable firms have lower leverage levels. The study results revealed that tangibility significantly and positively influenced capital structure of firms listed at Nairobi securities exchange. This study concludes that tangibility positively influence capital structure of firms. Growth opportunities showed an insignificant positive influence on capital structure of firms listed at Nairobi securities exchange. This research concludes that firms with more growth opportunities usually increase their leverage levels hence growth opportunities positively influence the level of leverage.

5.4 Recommendation of the Study

The study found that heuristic biases had a negative influence on capital structure. This means firms that are negatively influenced by heuristics end up having lower leverage levels. This will be acceptable for small firms but firms that have an eye for growth will not find this attractive to them. The study therefore recommends that managers be educated on both the gains and losses that arise from heuristic biases so that they can use them selectively and consciously when arriving at financing decisions. They can also choose to avoid heuristics when it will have an adverse effect on their capital structure. The research further recommends that firm managers be able to draw a balance between the right ratio of debt to equity to finance activities of the firms based on valid fundamental principles as opposed to heuristics.

The study further recommends that managers of firms listed at Nairobi securities exchange be educated on various heuristic biases that may affect their financing decisions. This will contribute positively in ensuring that they make informed decisions based on fundamentals as opposed to use of heuristics. Meaningful framework in strategy

formulation should be adopted to mitigate negative impact of these heuristics.

5.5 Limitations of the Study

Some companies hesitated before responding to the questionnaires. This could have been caused by confidentially issues or even fears that the researcher may be getting information for a competitor. This was resolved when the study assured them of confidentiality and that the research was purely academic evidence by the authorization letter to collect data. Data collection time was also limited making it difficult to visit all listed firms. This was resolved by employing a research assistant to assist in data collection from firms in Nairobi. Capital structure and control variables got their data from online published financial results. Some firms did not post their financial statements while others would post data for other years and not others. This limited amount of data required from secondary sources. However the data available was above 50% of the targeted hence appropriate to carry out the study.

5.6 Suggestions for Further Research

Researchers can contribute further to this study by undertaking a more detailed and comprehensive study which is not constrained by time so as to improve on the quality of this study and its finding. Further research with sufficient resources should be done on these three heuristic biases because it is an area which has very little review. It is also important for research to be carried out on the effect of heuristic biases on other firms not covered here. Most of research that has been carried out in this area of study has heavily dwelt on the investment decisions. Capital structure and heuristics is still an area to be explored for research in order to ascertain whether results are consistence. This study used regression analysis model. Other models could also be employed.

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APPENDICES

Appendix I: Questionnaire:

I am a university of Nairobi student pursuing a postgraduate degree in Master of Business Administration. I am writing a research project title 'effects of heuristic biases on capital structure of firms listed at Nairobi securities exchange'. Kindly spare little bit of your time to complete this questionnaire. Your genuine feedback is of great importance during the course of my academic research. May I assure you that this information will not be used for any other purpose other than academic pursuit?

Section A: Demographics

1) How long has this company been in existence? (kindly tick ✓ where applicable)

i. 10 years and below ( )

ii. 11-20 years ( )

iii. 21-30 years ( )

iv. 31-40 years ( )

v. 41 years and above ( )

2) How long has this company been trading at Nairobi securities exchange? Kindly tick ٧ where applicable.

i. Five years and below ( )

ii. 5-10 years ( )

iii. 11-15 years ( )

iv. 16-20 years ( )

v. 21 years and above ( )

Section B: Anchoring Bias

3) Please tick the appropriate box where 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree.

Anchoring bias

	Statement on indicators of anchoring bias	1	2	3	4	5
1	I frequently rely on recent information when making decisions on debt/equity issue					
2	When issuing debt or equity to finance the operations of the firm I consider the price of the previous period as a reference then adjust either upwards or downwards					
3	I usually make purchase decisions using the initial purchase price of the previous period.					
4	The choice between debt and external equity is based on 52-week high.					

SECTION C: Representative bias

4) Please tick the appropriate box where 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree

Representative bias

	Statement on indicators of representative bias	1	2	3	4	5
1	I am keen on choosing capital structure of recently posted results of performing companies.					
2	I try to avoid choosing capital structure of companies with a history of poor earnings.					
3	I rely on past performance to make capital structure decisions					
4	I believe a good capital structure is from firms with good performance.					
5	In my opinion, the last five years have seen my company adopt the capital structure of the best performed year.					

SECTION D: Availability Bias

5) Please tick the appropriate box where 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree.

Availability bias

	Statement on indicators of availability bias	1	2	3	4	5
1	I am keen on choosing capital structure of recently posted results of performing companies.					
2	My capital structure decisions depend on new and favorable information regarding debt and equity					
3	I usually avoid duplicating capital structure of the year that posted poor results.					

Thank you for your participation.

Appendix II: Firms listed at Nairobi Security Exchange

	Listed firms	
	Agricultural sector	**5**
	Eaagads Ltd	
	Kakuzi Ord	
	Limuru Tea Co. Ltd	
	Sasini Ltd	
	Williams Tea Kenya	
	Automobile	2
	Car and General	
	Sameer Africa Ltd	
	Commercial and Service sector	9
	Atlas Development and Support Service	
	Express Ltd Orchard	
	Longhorn Publishers	
	Nation Media Group	
	Scan group Ltd Orchard	
	Standard Group Ltd	
	TPS Eastern African (Serena) Ltd Orchard	
	Uchumi Supermarket Ltd	
	Kenya Airways Ltd	

	Construction and Allied sector	5
	Athiriver Mining Ord	
	Bamburi Cement Ltd	
	Crown Berger Ltd	
	E.A Cables Ltd Ord	
	E.A. Portland Cement Ltd Ord	
	Energy and Petroleum	5
	Kengen	
	Kenol Kobil and Lighting co. Ltd	
	Umeme Ltd	
	Kenya Power and Lighting Co. Ltd	
	Total Kenya Ltd	
	Investment and Service sector	5
	Centum Investment Co. Ltd	
	Home Africa Ltd Ord	
	Kurwitu Ventures	
	Olympia Capital Holdings Ltd Ord	
	Trans-century Ltd	
	Investment Services	1
	Nairobi Securities Exchange Ltd Ord	
	Manufacturing and Allied	9
	B.O.C Kenya Ord	

	British American Tobacco Kenya Ltd	
	Carband Investment Ltd	
	East African Breweries Ltd Ord	
	Eveready East Africa Ltd Ord	
	Flame Tree Group Holdings Ltd	
	Kenya Orchards Ltd Ord	
	Mumias Sugar Co. Ltd Ord	
	Unga group Ltd	
	Telecommunication sector	1
	Safaricom	
	Real Estate Investment Trust (REITS)	1
	Stalib Fahari I-REIT	
	Exchange Traded Fund	1
	New Gold Issuer (RP) Ltd	
	Total	44